WHAT IS CLAIMED IS:

1. A method for sintering a porous-glass material to form a glass base material, which is a base material for an optical fiber, comprising:

preparing a ring heater having an opening, through which said porous-glass material passes, for heating said porous-glass material;

selecting said porous-glass material having an outer diameter (d) within a predetermined range, said predetermined range being determined based on an inner diameter (D) of said opening of said ring heater; and

heating said porous-glass material in an atmosphere of dehydration gas and inert gas with said ring heater.

2. A method as claimed in claim 1, wherein said predetermined range of said outer diameter (d) of said porous-glass material is substantially $0.5 \times D \leqq d \leqq 0.9 \times D$.

3. A method as claimed in claim 2, wherein said predetermined range of said outer diameter (d) of said porous-glass material is substantially $0.6 \times D \leqq d \leqq 0.8 \times D$.

4. A method as claimed in claim 1, wherein said predetermined range of said outer diameter (d) of said porous-glass material is determined based on a vertical length (L) of said ring heater.

5. A method as claimed in claim 4, wherein said predetermined range of said outer diameter (d) of said porous-glass material is substantially $0.5 \times L \leqq d \leqq 0.9 \times L$.

6. A method as claimed in claim 1, wherein said predetermined range of said outer diameter (d) of said porous-glass material is determined so that an eccentricity of a core inside said glass

base material manufactured by sintering said porous-glass material becomes substantially 0.4 % or below.

7. A method as claimed in claim 1, wherein said heating heats said porous-glass material in a furnace that is provided inside said opening of said ring heater so that a part of said furnace is surrounded by said ring heater.

8. A method for manufacturing a preform, which is a base material of an optical fiber, comprising:

preparing a ring heater having an opening, through which a porous-glass material, which is a base material of said preform, passes, for heating said porous-glass material;

forming said porous-glass material having an outer diameter (d) within a predetermined range, said predetermined range being determined based on an inner diameter (D) of said opening of said ring heater;

sintering said porous-glass material in an atmosphere of dehydration gas and inert gas with said ring heater; and

elongating said sintered porous-glass material to form said preform.

9. A method as claimed in claim 8, wherein said predetermined range of said outer diameter (d) of said porous-glass material is substantially $0.5 \times D \leqq d \leqq 0.9 \times D$.

10. A method as claimed in claim 9, wherein said predetermined range of said outer diameter (d) of said porous-glass material is substantially $0.6 \times D \leqq d \leqq 0.8 \times D$.

11. A method as claimed in claim 8, wherein said predetermined range of said outer diameter (d) of said porous-glass material is determined based on a vertical length (L) of said ring heater.

12. A method as claimed in claim 11, wherein said predetermined range of said outer diameter (d) of said porous-glass material is substantially $0.5 \times L \leqq d \leqq 0.9 \times L$.

13. A method as claimed in claim 8, wherein said predetermined range of said outer diameter (d) of said porous-glass material is determined so that an eccentricity of a core inside said sintered porous-glass material becomes substantially 0.4 % or below.

14. A method as claimed in claim 8, wherein said heating heats said porous-glass material in a furnace that is provided inside said opening of said ring heater so that a part of said furnace is surrounded by said ring heater.

15. A method for manufacturing an optical fiber, comprising:

preparing a ring heater having an opening, through which a porous-glass material, which is a base material of said optical fiber, passes, for heating said porous-glass material;

forming said porous-glass material having an outer diameter (d) within a predetermined range, said predetermined range being determined based on an inner diameter (D) of said opening of said ring heater;

sintering said porous-glass material in an atmosphere of dehydration gas and inert gas with said ring heater; and

elongating said sintered porous-glass material to form a preform; and

drawing said preform to form said optical fiber.

16. A method as claimed in claim 15, wherein said predetermined range of said outer diameter (d) of said porous-glass material is substantially $0.5 \times D \leqq d \leqq 0.9 \times D$.

17. A method as claimed in claim 16, wherein said predetermined range of said outer diameter (d) of said porous-glass material

is substantially $0.6 \times D \leqq d \leqq 0.8 \times D$.

18. A porous-glass material having an outer diameter (d) within a predetermined range, said predetermined range being determined based on an inner diameter (D) of an opening of a ring heater, through which the porous-glass material passes, for heating the porous-glass material.

19. A porous-glass material as claimed in claim 18, wherein said predetermined range of said outer diameter (d) of said porous-glass material is substantially $0.5 \times D \leqq d \leqq 0.9 \times D$.

20. A porous-glass material as claimed in claim 19, wherein said predetermined range of said outer diameter (d) of said porous-glass material is substantially $0.6 \times D \leqq d \leqq 0.8 \times D$.